DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

OPEN-FILE REPORT
86-635

EXPLANATORY NOTES

This preliminary map is one of a series that covers a large part of the Los Padres National Forest and adjoining areas from the vicinity of Santa Margarita to Big Pine Mountain. Most of the fieldwork was done at intervals between 1977 and 1983. From 1980 through 1983, the mapping was supported by funds supplied under the provisions of the Wilderness Act for a survey of the mineral resource potential of designated "wilderness" and "roadless" areas.

Because this map was constructed using reconnaissance field methods of widely separated ground traverses, helicopter overflights, and photogeology, contacts and structures are largely interpretive. For example, most faults shown by short dashes were inferred by examination of aerial photographs. Lenticular subformational units are chiefly diagrammatic, and only major ones are depicted. To supplement the structural control, selected strike and dip symbols were compiled from Hart (1976) in the area west of Santa Margarita Lake, from an unpublished reconnaissance map of the Pozo 15' quadrangle by T.W. Dibblee, Jr., R.D. Brown, Jr., and R.A. Hope in the vicinity of Pozo, from Blackmar (1978) between Sean and American Canyons northeast of the La Panza fault zone, and from traverses in Big Falls and Little Falls Creeks by V.A. Frizzell, Jr. and P.C. Moser. Designation of submarine-fan lithofacies follows that of Walker and Mutti (1973).

Because the Upper Cretaceous through lower Eocene (?) submarine-fan sequence contains no distinctive marker beds and the sparse biostratigraphic data are discrepant, formational units and contacts within this sequence are somewhat arbitrary.

The Rinconada fault of Hart (1976) is herein designated Rinconada fault zone. This usage does not follow that of Dibblee (1976), who applied the name Rinconada fault to the entire zone that extends southeastward from the vicinity of Rinconada Mine, along the south side of Garcia Mountain, and beyond the edge of the map area. Instead, the same zone south of Garcia Mountain is here shown as a segment of the Sur-Nacimiento fault zone of Page (1970).

Identifications and age assignments of Cretaceous mollusks were made by D.L. Jones, LouElla Saul, and J.G. Vedder. Paleobathymetry and age assignments of Late Cretaceous and Paleogene foraminifers were provided by R.L. Pierce, A.A. Almgren, W.G. Rose, and R.L. Arnal. Late Cretaceous and Paleogene pollen and spores were determined by N.O. Frederiksen. Miocene mollusks and echinoids were identified by J.G. Vedder.

DESCRIPTION OF MAP UNITS

QUATERNARY DEPOSITS

Holocene and Pleistocene Deposits

Qya Young alluvium– Gravel, sand, and silt along modern stream channels, in fans, and on flood plains

Qoa Old alluvium– Gravel, sand, and silt generally perched above modern stream channels; dissected; depositional surfaces preserved at places

QUATERNARY AND/OR TERTIARY SEDIMENTARY ROCKS

Pleistocene and/or Pliocene sedimentary rocks

QTs Sandstone, conglomerate, and mudstone; nonmarine; derived chiefly from nearby pre-Pliocene sedimentary rocks and Cretaceous plutonic rocks; unconformity at base; correlates in part with Paso Robles Formation of Hart (1976) and Morales Formation of Dibblee (1973)

TERTIARY SEDIMENTARY ROCKS

Miocene sedimentary rocks

Tsm Santa Margarita Formation– sandstone, siltstone, and minor conglomerate; marine; possibly includes nonmarine tongues in upper part; locally contains siliceous silty shale; sandstone commonly contains "Margarian" Stage mollusks and echinoids; unconformity at base

Tm Monterey Formation– siltstone, mudstone, and shale; marine; laminated to thin bedded; locally highly siliceous; contains Relizian(?), Luisian, and Mohnian Stage foraminifers in adjoining quadrangles

Tcl Silty claystone and mudstone; marine; massive to indistinctly bedded; resembles Rincon Mudstone of the Santa Barbara region; may interfinger with unit Tu

Tclf Mudstone; marine (?); contains angular and subangular detritus derived from Franciscan Complex; some blocks as large as 2m in diameter

Tss Sandstone; marine; massive to thick bedded; locally conglomeratic; unconformity at base; unfossiliferous along Rinconada fault zone; contains shallow-water mollusks and echinoids in adjoining quadrangles; correlates with the Vaqueros Formation of Hall and Corbato (1967)

Oligocene and/or Eocene sedimentary rocks

Ts Simmler Formation– Conglomerate, sandstone, and minor mudstone; nonmarine; lenticular; abundant sandstone clasts in conglomerate; contains Eocene and/or Oligocene sporomorphs; unconformity at base; correlates with Sespe Formation of Hall and Corbato (1967)

Eocene and/or Paleocene sedimentary rocks

Tsu Sandstone, conglomerate, and minor concretionary mudstone; lenticular; submarine fan deposits; abundant chert and porcellanite clasts in conglomerate; contains rare Paleogene sporomorphs and poorly preserved Paleogene (?) foraminifers

Tsam Mudstone and minor sandstone; lithologically interfingers with unit Tss in eastern Garcia Mountain area; contains Paleogene (?) foraminifers

TERTIARY AND CRETACEOUS SEDIMENTARY ROCKS

Paleocene and Upper Cretaceous sedimentary rocks

TKs Concretionary mudstone, sandstone, and minor conglomerate; lenticular; submarine fan deposits; upper and lower contacts arbitrarily selected and may not be at the same stratigraphic position in all areas; selected sandstone zones are stippled; mudstone contains rare Paleogene sporomorphs and poorly preserved Late Cretaceous and/or Paleogene foraminifers

Upper Cretaceous sedimentary rocks

Ku Sandstone, conglomerate, and minor concretionary mudstone; lenticular; submarine fan deposits; mudstone contains sparse upper Campanian and/or lower Maastrichtian mollusks and foraminifers and Late Cretaceous sporomorphs

Kum Mudstone and minor sandstone; lenticular; intertongues with unit Ku in the area southwest of the La Panza fault zone; contains sparse upper Campanian and/or lower Maastrichtian mollusks and foraminifers and Late Cretaceous sporomorphs

Kuc Conglomerate, minor sandstone, and mudstone; lenticular; chiefly nonmarine except in the Bean, Fraser, and American Canyon areas, where it may be largely marine; grades up section into conglomeratic strata of unit Ku between Mariana Creek and Pine Mountain and in American Canyon; contains common clasts of granitic, gneissic, and quartzitic rocks; depositional on granitic rocks northeast of the La Panza fault zone

Kus Sandstone, mudstone, and minor conglomerate; lenticular; submarine fan deposits; laterally equivalent to the Point Sal Formation of Dibblee (1950) and Carrie Creek Formation of Hall and Corbato (1967), which contains Late Cretaceous mollusks; occurs southwest of the Sur-Nacimiento fault zone

CRETACEOUS AND JURASSIC (?) ROCKS

Cretaceous plutonic rocks

Kgr Granitic rocks, chiefly granodiorite and quartz monzonite (see Hart, 1976; Ross, 1978)

Lower Cretaceous and Upper Jurassic (?) sedimentary rocks

KJs Mudstone, sandstone, and minor conglomerate; marine; turbidite; common chert pebble clasts in conglomerate; contains Valanginian mollusks at a single locality; mapped as Toro Formation by Hart (1976); correlates in part with the Sullo Formation of Hall and Corbato (1967)

Cretaceous (?) and Jurassic (?) rocks

KJf Franciscan Complex– melange; chiefly fragments of mudstone, graywacke, greenstone, banded chert, and rare schist

ROCKS OF UNKNOWN AGE

s Serpentinite; protrusive(?) masses sheared along margins; occurs as discrete elongate bodies in Franciscan Complex

sc Silica-carbonate rock; hydrothermally altered serpentine; commonly occurs along shear zones within Franciscan Complex

SYMBOLS

Contact
Long dashes where approximately located; short dashes where inferred; interlonging contact diagrammatic

Fault trace
U, relatively upthrown side; D, relatively downthrown side; arrows, inferred direction of strike slip; bar and number indicate dip of fault plane; long dashes where approximately located; short dashes where inferred; dots where concealed

Anticline, approximate crestline
Short dashes where inferred

Syncline, approximate troughline
Short dashes where inferred

Landslide area
Arrows show direction of movement

Strike and dip of bedding
Solid symbol, measured on the ground; broken dip line, estimated from helicopter or distant sighting; broken dip and strike lines, estimated from aerial photographs

Strike and dip of overturned beds
Solid and broken symbols described above

Strike of vertical beds
Solid and broken symbols described above

Horizontal or nearly horizontal beds
Solid and broken symbols described above

Apparent dip of beds

A B E G
Generalized submarine-fan lithofacies of Walker and Mutti (1973)

Fossil locality

Edgeline of mapping from other sources

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Base from U.S. Geological Survey Lopez Mountain, 1965; Santa Margarita Lake, 1967; and Pozo Summit, 1967

Geology mapped at intervals 1977-1986 by J.G. Vedder, D.G. Howell, and Hugh McLean, assisted by J.M. Joyce (1981-1983), J.D. Kingston (1981); K.S. Pound (1983), J.H. Knapp (1983), S.Q. Boundy (1985), T.J. Wiley (1985, 1986), and L.D. Gergen (1986). Open-file format prepared by L.D. Gergen.

APPROXIMATE MEAN DECLINATION, 1986

SCALE 1:24 000

AREA OF MAP

GEOLOGIC MAP OF PARTS OF LOPEZ MOUNTAIN, SANTA MARGARITA LAKE, AND POZO SUMMIT QUADRANGLES, CALIFORNIA

by

J.G. Vedder, D.G. Howell, and Hugh McLean

1986

This map is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.